

## CLAIMS

What is claimed is:

1. A method of controlling a motor in a motor driving system, the method comprising:
  - calculating N control algorithms corresponding to N motor driving conditions;
  - driving the motor under N motor driving environments by using one of the calculated algorithms;
  - calculating performance indexes by using predetermined control factors which are detected when driving the motor using the algorithm under the N motor driving environments;
  - and
  - storing the calculated N control algorithms and the performance indexes corresponding to each of the N motor driving conditions.
2. The method of claim 1, wherein the calculating of the performance indexes comprises:
  - assigning predetermined weights to each of the predetermined control factors; and
  - calculating the performance indexes by combining the predetermined control factors to which the weights are assigned.
3. The method of claim 2, wherein the predetermined control factors include maximum overshoot, response delay, velocity ripple, settling time, or acceleration information.
4. A method of controlling a motor in a motor control system in which N controllers corresponding to N driving conditions include a base controller to be applied to each of the N driving conditions, the method comprising:
  - driving the motor by applying the base controller;
  - converting predetermined information detected by driving the motor into system performance information;

comparing the system performance information with N system performance information of the respective N controllers; and

driving the motor by selecting an optimum controller under the driving condition to correspond to the system performance information most similar to the detected predetermined information.

5. The method of claim 4, wherein the converting of the predetermined information detected by driving the motor into the system performance information, comprises:

assigning predetermined weights to the predetermined information; and  
calculating the system performance information by combining the predetermined information to which the weights are assigned.

6. The method of claim 5, wherein the detected predetermined information includes maximum overshoot, response delay, velocity ripple, settling time, or acceleration information.

7. A motor control method in a system driven by a motor, the method comprising:  
calculating N control algorithms corresponding to N motor driving conditions;  
driving the motor under N motor driving environments by using one of the calculated algorithms;

calculating performance indexes by using predetermined control factors which are detected when driving the motor using the algorithm under the N motor driving environments;  
and

storing the calculated N control algorithms and the performance indexes corresponding to each of the N motor driving conditions;

driving the motor by applying the algorithm;  
calculating a real performance index by using control results which are detected when driving the motor;

comparing the real performance index with the stored performance indexes, and  
selecting the stored performance index most similar to the real performance index; and

driving the motor using the algorithm which corresponds to the selected stored performance index.

8. The method of claim 7, wherein the control factors include maximum overshoot, response delay, velocity ripple, settling time, or acceleration information.

9. The method of claim 7, wherein calculating the performance indexes comprises:

assigning predetermined weights to each of the control factors; and  
calculating the performance indexes by combining the control factors to which the weights are assigned.

10. The method of claim 9, wherein calculating the real performance index comprises:

assigning predetermined weights to each of the control results which are detected when driving the motor; and  
calculating the real performance index by combining the control results to which the weights are assigned.

11. A system for driving a motor, the system comprising:  
a controller calculation unit to obtain functions of control parameters considering N driving environments and to calculate control algorithms according to the functions; and  
a memory to store the functions of the control parameters and the corresponding control algorithms.

12. The system of claim 11, wherein the control parameters include maximum overshoot, response delay, velocity ripple, settling time, or acceleration information.

13. A system for driving a motor, comprising:  
a plurality of driving environments; and

a plurality of controllers pre-designed based on the driving environments, wherein at least one controller of the plurality of controllers is selected to control a specific driving environment of the driving environments using control factors.

14. The system of claim 13, wherein the control factors include position accuracy, maximum overshoot, response delay, or settling time.

15. The system of claim 14, wherein predetermined weights are assigned to each of the control factors, the weights being determined by establishing predetermined reference ranges for each of the control factors and assigning corresponding points when the control factors are included in the ranges.

16. A system for driving a motor, comprising:  
a plurality of driving environments; and

a plurality of controllers pre-designed based on the driving environments, wherein less than all of the controllers is selected to control a specific driving environment of the driving environments using control factors.